

New Species of *Ribes* (Grossulariaceae) from South America

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ABSTRACT. Two new Andean species from Ecuador and Colombia are described in the genus *Ribes*. *Ribes erectum* is a shrubby species characterized by elliptic and mostly unlobed leaves, sessile glands, erect inflorescences, cup-shaped flowers, and ovaries with only sessile glands. *Ribes austroecuadorense* is characterized by ovate and 3-lobed to 3-cleft leaves, erect inflorescences, cup-shaped flowers, and pubescent ovaries. Both species are illustrated and discussed in a systematic context.

RESUMEN. Se describen dos especies nuevas andinas del género cosmopolita *Ribes* provenientes de Ecuador y Colombia. *Ribes erectum* es una especie arbustiva que se caracteriza por sus hojas elípticas y enteras, glándulas sésiles, inflorescencias erectas, flores cupuliformes y ovario únicamente con glándulas sésiles. *Ribes austroecuadorense* se caracteriza por sus hojas ovadas y 3-lobadas a 3-divididas, inflorescencias erectas, flores cupuliformes y ovarios densamente pubescentes. Ambas especies son ilustradas y discutidas en un contexto sistemático.


The genus *Ribes* includes seven subgenera and 150 species (Janczewski, 1907; Valsecchi, 1977). During work on the Saxifragaceae for the *Flora of Ecuador* (Freire-Fierro, in prep.), at least two new species were discovered. *Ribes erectum* and *Ribes austroecuadorense* belong to the subgenus *Parrilla*, which comprises representatives with functionally dioecious flowers arranged in pendulous or erect inflorescences. *Ribes* subg. *Parrilla* is most diverse in the Neotropics and includes approximately 45 species that occur in the Andean highlands at 2750 to 4267 m. While *R. austroecuadorense* is endemic to the south of Ecuador, *R. erectum* also occurs in Colombia.

Ribes erectum A. Freire-Fierro, sp. nov. **TYPE:** Ecuador. Azuay: Carretero Cuenca–Sayausí–Molleturo, 9 km from entrance to Parque Recreacional Cajas, 79°09'W, 02°49'S, 3370 m (pistillate), Freire-Fierro & Romoleroux 2416 (holotype, QCA; isotype, AAU). Figure 1.

Ribes lemannii Janczewski similis sed inflorescentiis erectis, floribus cupulatis et hypanthio minus quam 2 mm longo differt.

Shrub, (0.2–)1–4(–6) m tall, erect or seldom scandent. Branches slightly hairy with sessile glands. Lamina elliptic in outline, 1.4–4.0(–5.5) cm long, 0.9–1.5(–2.5) cm wide, the base decurrent to cuneate, the apex acute, unlobed to weakly 3-lobed, the margin serrate, subcoriaceous, with sessile glands beneath and above; petioles 0.5–0.7(–1.3) cm long, glabrescent, with a winged base. Inflorescence 4.5–8.0(–10) cm long, erect, 16–30-flowered; rachis densely pubescent; bracts narrowly ovate, 2–4(–5) × 0.5–1 mm, base truncate, apex acute, ciliate, dorsal face densely pubescent with sessile glands; pedicel 1.0–1.5 mm long, densely pubescent with sessile glands; bracteoles obovate, 0.8–1.4 mm long, 0.5 mm wide, apex acute with a stipitate gland. Flowers cup-shaped, 2.0–4.5 mm long, 2–4(–5) mm wide; hypanthium 0.8–2 mm long, calyx lobes 1–2 mm long, 0.8–1.5 mm wide, slightly reflexed, densely pubescent with sessile glands, externally green-brown, internally pale green; petals 0.5–0.8 mm long, 0.5–1 mm wide, apex obtuse to acute, green-yellowish; ovary nearly glabrous with sessile glands; staminate flower with filaments 0.5–1 mm long, anthers 0.5 mm long, 0.5–0.8 mm wide, pistil rudimentary; pistillate flower with stamens rudimentary, ovary bicarpellate, styles 1.0–1.8 mm long, bilobed $\frac{1}{3}$ to $\frac{1}{5}$ of their length. Fruit spheroidal, about 8 mm long, 7 mm wide, erect, with sessile glands, striate, green to yellow.

Figure 1. *Ribes erectum* A. Freire-Fierro. —A. Flowering branch. Note short persistent peduncles where older flowers have fallen away. —B1–B7. Leaves. —C. Abaxial side of the leaf. —D. Pistillate flower. —E. Longitudinal section of a pistillate flower. —F. Staminate flower (arrows showing stipitate glands in bracteoles). —G. Longitudinal section of a



staminate flower. —H. Young fruit. (A, drawn from Asplund 17837; B4, B6, C, D, E, and H, from Freire-Fierro & Romoleroux 2416; B1, F, and G, from Luteyn & Lebrón-Luteyn 5771; B2, from Harling 1247; B3, from Jaramillo 7319; B5, from Löjtner & Molau 14277; B7, from Harling et al. 8712.)

Variation and affinities. *Ribes erectum* is a distinctive species that has not been described before even though it is quite common. The presence of sessile to subsessile glands in the adaxial and abaxial surfaces of the leaves, the erect inflorescences, the cup-shaped flowers, and the erect and yellowish fruits are the distinguishing features of this species. According to Jancezwski's (1907) taxonomic treatment of the genus, all the Ecuadorian species of *Ribes* have pendulous inflorescences, but the two newly described species have erect inflorescences. Representatives of *R. erectum* have sometimes been misidentified as *R. lemannii* because of the cuneate leaves with sessile glands; however, they differ from the latter by the cup-shaped flowers, and the green to green-brownish hypanthia less than 2 mm long.

Flowering and fruiting. *Ribes erectum* flowers throughout the year, and fruiting specimens have been collected from February to August, and from November to December.

Distribution and habitat. This species occurs on grass páramo and in wet montane forests at 2750 to 3920 m. It has been collected in the central and southern Ecuadorian Andes, and in southern Colombia.

Paratypes. COLOMBIA. NARIÑO: Volcán Galeras, near Pasto, ca. 2800 m, Gentry et al. 30489 (MO). ECUADOR. PICHINCHA: Sebritana, Hda. Pedregal and Yanaurcu, 3400–3500 m, Acosta Solís 8307 (F), Jameson s.n. (K), Jameson & Hooker s.n. (1838) (K). COTOPAXI/NAPO: Salcedo–Napo road, 22–47 km to the N, 3400–3920 m, Freire-Fierro & Viteri 2447a, 2447b (AAU, QCA), Jørgensen et al. 56322 (AAU, QCA, QCNE); km 52, Løjtnant & Molau 13782 (AAU, GB, QCA). TUNGURAHUA: Llanganati, Chihuila Sacha or Ainchilibí, 3750 m, Barclay & Juajiboy 8962 (MO); Aucacocha–Tambo, 2750–2800 m, Jaramillo 6297 (QCA); N of Choza Aucacocha, 3500 m, Øllgaard et al. 38608 (AAU). CHIMBORAZO: Alao–Llaetapamba road, Páramo de Culebrillas, Cerón et al. 11775 (MO, QCNE); Alao–Huamboya road, km 8, 3700 m, Jørgensen 91801 (AAU, QCA, QCNE); valley of Río Alao, 3450 m, Huttel 951 (QCA); to 10 km NE of Alao, Cusipaccha, 3500 m, Øllgaard et al. 38133 (AAU, NY, QCA); Guayllabamba–Alao road, 2900–3100 m, Romoleroux 368 (F, NY, QCA); Atilio, slope of Laguna Negra, 3600 m, Brandbyge 60978 (AAU); Riobamba–Alao–Huamboya road, Quebrada Supaycahuan, 3570–3620 m, Zak & Jaramillo 3307 (MO). CAÑAR: Azogues–Moloboc Grande road, 3200–3450 m, Jaramillo 9856 (AAU, QCA), Romoleroux et al. 399 (F, NY, QCA); Azogues–Pindilíg road, km 21–22, 3250–3350 m, Løjtnant & Molau 14277 (AAU, GB); 30 km NE of Azogues, Río Dudas, Prieto P-150 (NY); Taday, 2–3 km W, 3100–3200 m, Harling 27243 (GB); Virgin Corral, 4.5 km SW, 3150 m, Holm-Nielsen et al. 29214 (AAU). AZUAY: Chiquintad–Planta Hidroeléctrica Chanlud–Tuni road, km 27, at Presa Chanlud, 3400–3500 m, Øllgaard et al. 98652 (AAU, QCA, QCNE); Chiquintad–Represa de Empresea Eléctrica–Labrado road, Jaramillo et al. 8903 (AAU, F, NY, QCA);

Cuenca–Molleturo road, Parque Recreacional Cajas, 3350–3890 m, Böhlin et al. 1393 (GB, QCA), Freire-Fierro & Romoleroux 2416 (AAU, QCA); Laguna Surucuchu, Sayausí, W side, 3200–3300 m, Harling 25474 (GB); 10 km W, 3300 m, Harling et al. 20222 (GB); Soldados, below Quinoas, 3400 m, Harling et al. 8747 (GB), Huttel 986 (QCA); Guabidula, Jaramillo & Winnerskjold 5424 (QCA); Llavinco, León et al. 2573 (QCA); 25 km of Cuenca, 3500 m, Madsen et al. 36593 (AAU); 1 km before the Control to Loja, deviation to Yanasacha, Jaramillo & Boeke 300, 342 (AAU, QCA); Río Machángara, NW of Cuenca, 3300–3400 m, Sparre 18569 (S); Sevilla de Oro, 4–6 km N, 2953–3280 m, Camp E-4715 (A, F, K, S, US, W); 6–8 km NNE, Páramo del Castillo, 3280–3390 m, Camp E-5127 (AAU, NY, S, US); 3700 m, Harling 1247 (S); 10 km NNE, 3200–3350 m, Øllgaard & Balslev 9425 (AAU, F, MO, NY, S); Gualaceo–San Juan Bosco road, 3 km W of pass, 3250–3350 m, Laegaard 53949 (AAU, QCA); Cuenca–Machala road, km 22, turnoff towards Patacocha, km 7, 3000 m, Jørgensen et al. 91910 (AAU, QCA, QCNE), Romoleroux et al. 444 (NY, QCA); Gañadel, 3450 m, Asplund 17837 (S); Cumbe, 3100 m, Harling et al. 8712, 8714 (GB); 10–20 km S, páramo of Tinajillas, 3000–3400 m, Camp E-378 (NY); 3700 m, Camp E-493 (NY); 3000–3300 m, Harling et al. 20115 (GB); Cuenca–General Plaza (Limón) road, 3100–3500 m, van der Werff & Gudiño 11434 (MO, QCNE); 2800–3500 m, van der Werff & Gudiño 11079 (MO); páramo de Patococha, 3300–3400 m, Barclay & Juajiboy 8622 (MO, US); 3200–3300 m, Dorr & Barnett 5995 (NY, QCA, QCNE), Harling & Andersson 22719 (GB, QCA); summit of Cordillera Zapote Naida, 3450 m, Harling 25974 (GB), Jørgensen 92674 (AAU, MO, QCA, QCNE), Luteyn & Lebrón-Luteyn 5771 (AAU, GB, NY, QCA), Luteyn 13410 (NY, QCA, QCNE); 21 km E of Gualaceo, 3200 m, páramo de Culebrillas, Luteyn et al. 14116 (MO, NY); Romoleroux 432 (NY p.p., QCA), 437 (NY, QCA); between Huagrancha and Mt. Galápagos, 3140–3505 m, Steyermark 53465 (MO, NY). LOJA: Cerro Chinchilla, Celén, 3500–3780 m, Jaramillo 7319 (AAU, GB, MO, QCA); Loja–Saraguro road, 5 km N of San Lucas, 2800 m, Böhlin & Böhlin 1028 (GB); Loma del Oro, turnoff towards Fierro–Urco, km 12, 3400–3650 m, Jørgensen & Madsen 65805, 65821 (AAU, QCA), Madsen & Ellemann 85636 (AAU, QCA, QCNE); 10 km of Pichig, 3000–3500 m, Madsen 86739 (AAU), Øllgaard et al. 90990 (AAU, F, MO, QCA, QCNE), Romoleroux 761 (AAU, NY, QCA). NAPO: Río Chalupas, 3700 m, Laegaard 101779 (AAU, QCA); Río Langoa, 3400 m, Jaramillo 9610 (AAU, QCA).

Ribes austroecuadorensse A. Freire-Fierro, sp. nov. TYPE: Ecuador. Loja: Parque Nacional Podocarpus, E of Nudo de Cajanuma, trail from Centro de Información toward Lagunas del Compadre, ca. 79°10'W, 04°05'S, 3100–3200 m (pistillate), Øllgaard 90339 (holotype, QCA; isotypes, AAU, QCNE). Figure 2.

Ribes andicola Janczewski similis sed inflorescentiis erectis, foliis 3-fassis et bracteis quam 5 mm longioribus differt.

Low prostrate shrub. Branches hairy. Lamina ovate in outline, 1.7–5 cm long, 1.0–3 cm wide, base cuneate, apex acute, 3-lobed–3-cleft, margin




Figure 2. *Ribes austroecuadorensis* A. Freire-Fierro. —A. Flowering branch. —B. Leaf. —C. Abaxial side of the leaf. —D. Staminate flower. —E. Longitudinal section of a staminate flower. —F. Longitudinal section of a pistillate flower. —G. Fruit. (A–C, F, G, drawn from Øllgaard 90339; D, E, from Madsen & Pedersen 86464.)

serrate, leathery, slightly pilose with sessile glands beneath, pubescent above; petioles 0.8–2.5 cm long, hairy, with a winged and fringed base. Inflorescence 5–11 cm long, erect, 26–28-flowered; rachis hairy; bracts narrowly elliptic, 5–8 mm long, 1.5 mm wide, base truncate, apex acute, ciliate with subsessile glands, dorsal face hairy with sessile glands; pedicel 1.5 mm long, hairy; bracteoles obovate, 1.0–1.5 mm long, 0.5 mm wide, apex obtuse with a terminal stipitate gland. Flower cup-shaped, 4–5 mm long, 3.5–4.5 mm wide; hypanthium 1.8–3 mm long, calyx lobes 2 mm long, 1.2–1.5 mm wide, reflexed, hairy, externally pale green, pinkish tinged; petals 0.8–1 mm long, 0.5 mm wide, apex obtuse; ovary densely pubescent with sessile glands; staminate flower with filaments 1.0–1.2 mm long, anthers 0.5 mm long, 0.5–0.7 mm wide, pistil rudimentary; pistillate flower with stamens rudimentary, ovary bicarpellate, styles 1.5–1.8 mm long, bilobed $\frac{1}{3}$ of their length. Fruit spheroidal, about 7.8 mm long, 8.5 mm wide, erect, hairy with sessile glands, striate.

*Ribes austroecuadorens*e is a rare species known from only two localities. Although this species resembles *R. andicola*, it differs by the 3-cleft leaves, the erect inflorescences, and the bracts, which are longer than 5 mm. In addition, *R. austroecuadorens*e has pinkish petioles and bicolored leaves, characters absent in *R. andicola*. Besides *R. austroecuadorens*e, *R. leptostachyum* is the only other

species of *Ribes* in Ecuador with up to 3-cleft leaves.

Flowering and fruiting. February and November.

Distribution and habitat. *Ribes austroecuadorens*e occurs in scrub páramo and elfin forest, at 3000 to 3480 m elevation. It is endemic to southern Ecuador.

Paratypes. ECUADOR. **Azuay:** Gualaceo–Limón road, ca. 23 km W of Gualaceo, Páramo de Culebrillas, 3477 m, Luteyn et al. 14127 (QCA). **Loja:** Parque Nacional Podocarpus, Lagunas de Compadre, ca. 6 hours walking from Centro de Información, 3000–3400 m, Madsen & Pedersen 86464 (AAU, QCA).

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